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IN THE CLAIMS:

1. to 10. (Canceled)

11. (New) A method of producing a cordierite ceramic honeycomb comprising the steps of:

preparing raw materials becoming cordierite and forming agents;

adding the forming agents into the raw materials becoming cordierite;

mixing the forming agents and the raw materials to obtain a raw material batch;

extruding the raw material batch to obtain a formed body;

drying the formed body; and

sintering the formed body after drying, so as to obtain a honeycomb structural body having a cordierite crystal phase as a main ingredient, wherein, at the sintering step, a temperature descending rate at least from a maximum temperature greater than 1300°C to 1300°C is not larger than 100°C/hour, and wherein quartz is used in the raw material batch becoming cordierite and alumina having an average particle size larger than 2  $\mu\text{m}$  is used.

12. (New) The method of producing a cordierite ceramic honeycomb according to claim 11, wherein a thermal expansion coefficient along the A-axis of the cordierite ceramic honeycomb is not larger than  $0.4 \times 10^{-6}/^{\circ}\text{C}$  and a thermal expansion coefficient along the B-axis of the cordierite ceramic honeycomb is not larger than  $0.6 \times 10^{-6}/^{\circ}\text{C}$ , in a temperature range from  $40^{\circ}\text{C}$  to  $800^{\circ}\text{C}$ .

13. (New) The method of producing a cordierite ceramic honeycomb according to claim 11, wherein a thermal expansion coefficient along the A-axis of the cordierite ceramic honeycomb is not larger than  $0.3 \times 10^{-6}/^{\circ}\text{C}$  and a thermal expansion coefficient along the B-axis of the cordierite ceramic honeycomb is not larger than  $0.5 \times 10^{-6}/^{\circ}\text{C}$ .

14. (New) The method of producing a cordierite ceramic honeycomb according to claim 11, wherein a porosity of the cordierite ceramic honeycomb is larger than 30%.

15. (New) The method of producing a cordierite ceramic honeycomb according to claim 11, wherein a temperature maintaining time at the maximum temperature is not less than 6 hours.

16. (New) A method of producing a cordierite ceramic honeycomb comprising the steps of:

preparing raw materials becoming cordierite and forming agents;

adding the forming agents into the raw materials becoming cordierite;

mixing the forming agents and the raw materials to obtain a raw material batch;

extruding the raw material batch to obtain a formed body;

drying the formed body; and

sintering the formed body after drying, so as to obtain a honeycomb structural body having a cordierite crystal phase as a main ingredient, wherein, at the sintering step, a temperature descending rate at least from a maximum temperature greater than 1300°C to 1300°C is not larger than 100°C/hour, and wherein lauric acid potash soap is used as the forming agent.

17. (New) The method of producing a cordierite ceramic honeycomb according to claim 16, wherein a thermal expansion coefficient along the A-axis of the cordierite ceramic honeycomb is not larger than  $0.4 \times 10^{-6}/^{\circ}\text{C}$  and a thermal expansion coefficient along the B-axis of the cordierite ceramic honeycomb is not larger than  $0.6 \times 10^{-6}/^{\circ}\text{C}$ , in a temperature range from  $40^{\circ}\text{C}$  to  $800^{\circ}\text{C}$ .

18. (New) The method of producing a cordierite ceramic honeycomb according to claim 16, wherein a temperature maintaining time at the maximum temperature is not less than 6 hours.

19. (New) A method of producing a cordierite ceramic honeycomb comprising the steps of:

preparing raw materials becoming cordierite and forming agents;

adding the forming agents into the raw materials becoming cordierite;

mixing the forming agents and the raw materials to obtain a raw material batch;

extruding the raw material batch to obtain a formed body;  
drying the formed body; and  
sintering the formed body after drying, so as to obtain a  
honeycomb structural body having a cordierite crystal phase as a  
main ingredient, wherein, at the sintering step, a temperature  
descending rate at least from a maximum temperature greater than  
1300°C to 1300°C is not larger than 100°C/hour, and wherein a  
temperature descending rate from the maximum temperature to  
1250°C is not larger than 50°C/hour.

20. (New) The method of producing a cordierite ceramic  
honeycomb according to claim 19, wherein a thermal expansion  
coefficient along the A-axis of the cordierite ceramic honeycomb  
is not larger than  $0.4 \times 10^{-6}/^{\circ}\text{C}$  and a thermal expansion coefficient  
along the B-axis of the cordierite ceramic honeycomb is not  
larger than  $0.6 \times 10^{-6}/^{\circ}\text{C}$ , in a temperature range from 40°C to  
800°C.

21. (New) The method of producing a cordierite ceramic honeycomb according to claim 19, wherein a temperature maintaining time at the maximum temperature is not less than 6 hours.

22. (New) A method of producing a cordierite ceramic honeycomb comprising the steps of:

preparing raw materials becoming cordierite and forming agents;

adding the forming agents into the raw materials becoming cordierite;

mixing the forming agents and the raw materials to obtain a raw material batch;

extruding the raw material batch to obtain a formed body;

drying the formed body; and

sintering the formed body after drying, so as to obtain a honeycomb structural body having a cordierite crystal phase as a main ingredient, wherein, at the sintering step, a temperature descending rate at least from a maximum temperature greater than 1300°C to 1300°C is not larger than 100°C/hour, and wherein the maximum temperature is 1425°C.

23. (New) The method of producing a cordierite ceramic honeycomb according to claim 22, wherein a thermal expansion coefficient along the A-axis of the cordierite ceramic honeycomb is not larger than  $0.4 \times 10^{-6}/^{\circ}\text{C}$  and a thermal expansion coefficient along the B-axis of the cordierite ceramic honeycomb is not larger than  $0.6 \times 10^{-6}/^{\circ}\text{C}$ , in a temperature range from  $40^{\circ}\text{C}$  to  $800^{\circ}\text{C}$ .

24. (New) The method of producing a cordierite ceramic honeycomb according to claim 22, wherein a temperature maintaining time at the maximum temperature is not less than 6 hours.